# New Things Not Found in Any Books How Almost Every HUMAN STRATEGY Has An EXACT COUNTERPART Among ANIMALS

## BEASTS, BIRDS and INSECTS **CanTEACHMEN** the Wiles of WAR

By Fleet Surgeon C. Marsh Beadnell, R. N.

EVERAL of the stratagems witnessed in modern war are strikingly similar to the multitudinous wiles and devices resorted to in that ever-waging war between the lower animals known as the "struggle for existence." The cat, in stalking its prey, takes every advantage of stealth and covert and makes use of a flank rear attack; the hungry thrush, simulating the scratching of the mole, beguiles the unfortunate earthworm to the surface of the garden lawn by the application of a stratagem.

The military instincts of certain ants are notorious; an army of these insects march across country clearing the ground of all animal matter, dead or alive. The African driver ant, when on the war path, crosses broac streams by forming "animated bridges." Lateral columns, five to six deep, are thrown out to forage on the flanks of the main army, and, should a rich food supply be discovered, a general halt is called and a sufficient force detached and concentrated on it.

Spiders and all active insects take to flight directly the vanguard of the army is sighted, for any insects unlucky enough to lie in the path of the marauders are at once seized and devoured. Skirmishing parties are sent up trees and bushes, and even young birds in their nests fall victims to these ruthless destroyers. When a foreign tribe of ants is encountered the slaughter on either side is terrific; no quarter is asked or given, all

prisoners being immediately decapitated.

Every schooboy who has indulged in bird's-nesting an ideal pastime for the training of the young scout, as it teaches him how to observe without being observed—has probably been duped by the common plover, who, when disturbed on her nest, runs away, tumbling about and flapping as if she had a broken wing, thereby tempting the intruder to give chase and

"Shamming wounded" was the artifice that enabled the celebrated scout Burnham to escape from the toils of that arch-strategist De Wet. Seeing capture to be inevitable, the wily scout tied a bloodstained bandage round his leg, and, as the enemy came up, pretended to limp painfully. Thus it came about that in-stead of being placed with the rest of the prisoners under escort, he was relegated to a wagon in which some genuinely wounded men guarded solely by

After dark the wagon stuck in a culvert, and the Kaffir going forward to bear a hand with the mules, Burnham selzed the chance for which he had been patiently waiting. When the colored sentry returned to his charges he found one was missing.

There is an arboreal lizard in America known as

the iguana, whose natural enemy is the coati. The coatis work in two sections-one climbs through the tree tops, the other, slightly in the rear, runs along the ground; when the iguanas see the coatis coming toward them through the branches of the trees, they drop to the ground only, however, to be killed by those below. The following incident of the American-Filipino campaign will bear comparison with the above: Some insurgents occupying a stretch of sparsely wooded ground had for a long time defied the American shrap-As a final resort General Wheaton aligned his infantry in such a manner that it commanded the edges of the wood. The cavalry then charged through the centre and drove out the Filipinos, who, endeavoring to double back along the outskirts, were at once

picked off by the infantrymen. Several animals, notably the skunk, when in danger protect themselves by a stench of such penetration and persistence that the unfortunate recipient is unable to rid himself of the effluvium for days.

It is not so very long ago since a man-of-war had a most unpleasant experience of a Chinese stink-bomb, and was compelled to retire to the open seas for purification. The stink-bomb was only one of the crude machinations of war made use of by the Celestials; in their earlier wars the soldiers used to carry small bags of pepper about their persons, the contents of which were flung into the faces of their adversaries when at close quarters

The ant-lion digs pitfalls and preys upon the luckless insects that tumble into it, and we may read in Genesis how the ancient soldiers used to decoy their

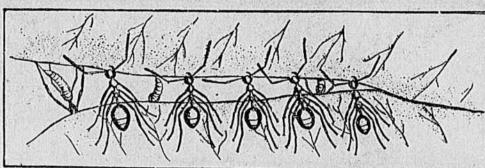
enemies over pitfalls and slime-pits.

The cuttlefish when pursued by a foe ejects a cloud of inky fluid into the surrounding water, under cover which it makes good its escape. On several occasions did the Boers resort to a similar device; for instance, on May 25, 1900, a commando of Boers finding themselves hard pressed by Rundle's men set fire to the grass between Senekal and the Biddulphsbery kopjes and were lost sight of behind impenetrable clouds of smoke; again, on June 8, 1900, when Buller shelled the enemy out of Laing's Nek and a running fight ensued, they fired the veldt in their rear, thus embarrassing their pursuers and masking their own line of

Many animals feign death in order to escape detec-tion; "playing 'possum" is a well-known trick of savage warfare; even our late war at the Cape was not without an example; when the Dublin Fusiliers, having gained the enemy's trenches after the fight at Bridle Drift, were employed after sundown in burying the dead Boers, one of the seeming corpses was seen to jump up and run

Shouting out words of command in the language of the foe can only, for obvious reasons, be resorted to during night attacks. On January 5, 1900, Colonel Wat-son and a battalion of the Suffolk Regiment were climbing the hill overlooking Colesberg, the summit of which was known to contain some entrenched Boers. enemy did not discover the attack until the English were well nigh on top of them; then they opened fire and a fierce duel at close quarters ensued. All had gone well but for a Dutchman calling out in English "Retire." Instantly chaos reigned, the Colonel was killed, seven officers and seventy men were taken prisoners.

At Magersfontein it is said that a Dutchman in one of the foremost trenches threw the Highlanders into confusion by calling out "Retire!" Another incident of the same kind occurred on the night of December 7, 1899, when Colonel Edwardes and 200 men sallied forth from Ladysmith for the express purpose of silencing the "Long Tom" on Gun Hill. By 2.a. m. the little force had reached the foot of the hill and began the



ANTS BUILDING A FORTRESS OF LEAVES. When threatened by an attack from some enemy certain kinds of ants construct ingenious fortifications of leaves to protect th centrances to their homes. While several of the ants hold the edges of the leaves together they are firmly joined with a silken web spun by young ants held for this purpose in the mouths of the older ones.

ascent. Suddenly came from out the stilly darkness the "Wie da?" of the Dutch outpost. No response. Then a Boer called out excitedly in Dutch, "William! Redcoats! Shoot!" but an English officer of the Light Horse who could speak Dutch shouted out, "William! Redcoats with bayonets! Run!" Major Karri Davies followed this up with, "Now boys, fix bayonets and let them have it with cold steel!" This proved too much for the Dutchmen, who fled, leaving the six-inch Creusot and a Maxim in our hands. The Boers would have been still more mortified had they known that our men were armed with carbines, which, of course, are not

An amusing incident is related of Mafeking. A megaphone was constructed, and on a dark, still night the Boers were startled by hearing a voice, apparently at their very feet, give the order, "Fix bayonets!" Charge!" The result was a prolonged rifle fire, while our men lay convulsed with laughter in the fastnesses of their trenches.

Another little piece of pleasantry indulged in by the erection of some dummy forts. These the Boers con-Mafekingites at the expense of their besiegers was the scientiously shelled for a week, and on October 1, 1899, to the huge delight of the British, they made a rush upon them, only to discover how they had been duped.

There was something in the Boer's method of con-

ducting hostilities that savored very much of Old Testament tactics. Compare the two following: In 1406 B. C., the Israelites and Benjamites were at war. The Israelites concealed 10,000 men just outside the town of Cibash in which words. Gibeah, in which were the Benjamites. The remainder of the army then demonstrated in front of the main gates and so lured the Benjamites out to try conclu-The battle had scarcely begun when the Jewish general gave the order to retire; the Benjamites gave chase, but were no sooner well clear of the city than the 10,000 "liers in wait" rushed into it and set it in flames. When the Benjamites saw this they turned back, but found themselves inclosed by the Children of Israel, who "chased them out and trod them down

of Israel, who "chased them out and trod them down with ease over against Gibeah towards the sunrising . . . . so that all which fell that day of the Chldren of Benjamn were 25,000 men that drew the sword." Exactly 3,306 years later three squadrons of the Eighteenth Hussars were engaged by a force of Boers; the latter suddenly fled, hotly pursued by the cavalrymen. After about a mile the Hussars found a heavy fire directed at them from a large body of the enemy concealed in a near kopje; they wheeled about, sought cover, and began to reply, but their carbines were mere toys pitted against the long-range Mausers. Fortutoys pitted against the long-range Mausers. Fortu-nately the opportune arrival of Major Stewart with

a number of big guns called "pompoms" prevented what might have been an ignominious disaster. Again, in March, 1902, our infantry chased the enemy at Graskop for two miles, 'when suddenly 200 Boers who were concealed behind a hillock rushed out upon them; a running fight en-sued, our men being scattered and four of them taken prisoners."

The following is a specimen of native strategy I witnessed in the Philippines. Saturday, March 25, 1899, had been spent by General Wheaton in shelling some field forts on the Tuliajan River. One of these forts was erected on a railway bridge which spanned the river and the other two were on the far bank. The capture of this bridge with the forts was imperative, as it was the only means offered the general of getting his transports across the water. On Sunday morning wreaths of blue smoke could be seen rising from the forts, so the Yanks "guessed" that the rebels were cooking their food

and meant to stay. Wheaton, seeing a frontal attack to be out of the question, deter-mined to try a lateral one. Colonel Egbert was detailed with about 150 men to undertake this. Compass in hand, the gallant colonel led the way through the jungle and after a couple of hours struck the river well above the forts; a raft was improvised to ferry over the arms and ammunition, and then commenced the march down stream on the opposite side of the river. Wheaton's guns tot louder and louder as the little force wended their way through the thick brush. Slowly and cautiously Egbert advanced his men, well deployed, in the direction of the forts. Wheaton's shells now ceased to screech overhead, a sign ceased to screech overhead, a significant the little band of men were getting close to the forts. Pht!—a man lurches forward and drops dead. Pht! Pht! Pht! the colone!

and twenty other braves fall. and twenty other braves fall.

"We are ambushed!" is the anguished cry; "down on your belies every man and crawl for sheiter!" For ten minutes, which seemed like hours, the flankers grovelled while the "phitting" Mausers and brassheathed Remingtons ripped up the soil around. Then came the boom! burRRH! bang! of Wheaton's shells as they whized overheaf and burst. as they whizzed overhead and burst among the enemy. Heads were gin-gerly raised, and there, less than 500 yards off, were the Filipinos in full retreat. The railway bridge was now captured, but with the sacrifice of a gallant colonel and a score of mes. el and a score of men. It was in this move that the unfortunate Prince Lowenstein was shot. There were only two forts, for it was discovered that the one on the bridge was a dummy. The cunning little Filipino, knowing that the Americans

would try and outflank, had, during the night, made a countermove and outflanked the would-be outflankers, leaving smoulder fires of damp wood and pitch in the forts to give them the appearance of being still occu-

The use of apparel as a guise in war dates from the earliest times (Joshua ix. 4), and its use, or rather abuse, by the Boers was extremely frequent. On one occasion in the neighborhood of Clanwillian, four Boers dressed in British uniform rode boldly up to within 200 yards of one of our blockhouses and with consummate imperturbability dismounted and proceeded to tie up their horses. Three of them ostentatiously leaving their rifles leaning against the barbed-wire fence, strolled up to the house and in perfect English asked for a drink of water. The fourth Boar who had dallied beed up to the house and in periect English asked for a drink of water. The fourth Boer, who had dallied brhind pretending to have some little difficulty in tying up his restive steed, now sauntered up with his rifle and levelling it at the sentry's head held him up while the

three Dutchmen inside appropriated the other men's rifles. It was a case of diamond cut diamond when General It was a case of diamond cut diamond when General—then Colonel—Functon set himself the tack of capturing Aguinaldo. Functon, with the assistance of some Filipinos in the pay of the Americans, concocted a letter, which was written on some notepaper obtained from another Filipino general, then a prisoner in Manila. The letter stated that certain reinforcements, for which Aguinaldo had asked warm heigh early to him. ila. The letter stated that certain reinforcements, for which Aguinaldo had asked, were being sent to him, and that with them were five American prisoners, the latter being, of course, Funston and his officers, while the reinforcements were personated by a party of Macabebes rigged out for the occasion in the uniform of Aguinaldo's soldiers. The expedition got through to a party of the state of the state were Aguinaldo's headquarters, and he and all his staff were taken prisoners.

I can vouch for the accuracy of the following episode as it was related to me by no less a person than the principal hero himself. Major Hennessy, D. S. O., and Captain Turner had been ordered to take over a certain plece of railway. From one of the employes they had learned that the line was clear as far as Springfontein, but that a Boer rear guard was occupying the railway station. station. Procuring a trolley, they set out after dark in the direction of Springfontein, whither they eventually arrived without incident. Boots were removed, the arrived without incident. Boots were removed, the trolley was silently derailed and they crept up to the station. In the waiting room they discovered eight slumbering Boers with their bando.

liers and rifles by their sides. While Turner stood at the door with a revolver in each crept in among the sleepers and moved every rifle. This done, the sleepers were awakened with "You are our pris-oners." The look of amazement that crept over the Dutchmen's faces as they stretched out their hands for their weapons baf-fies description. "Oh, you are un-armed," the major informed them, "and if you do not quietly enter the truck awaiting you on the platform we shall be under the painful necessity of shooting you."

It is not often that a whole town is taken from an enemy by six men and "bluff," yet this feat " was accoming the country for food.

ARMY OF ANTS ON THE MARCH
The main column (A) has just crossed a narrow bridge (E) of its own country bridge (E) of its own country to protect the bridge. Ahead is the advance guard (G) while a foraging party (B) is scouring the country for food.

plished on March 30, 1900, when Colonel Hughes and five men captured the town of Uppington on the Orange River. The Boers fired a few shots, but the covering party began to empty their magazines with such rapidity that the Dutchmen, never dreaming that six men would have the impudence to attack the town, jumped to the conclusion that a large body of British was upon them and took to their heels.

#### SCIENCE Different from What We Call **COMMON SENSE**

GREAT many distinguished scientists have insisted that science and common sense are so closely related that they amount to little more than different terms for one and the same thing. One scientist has said that the most simple description of true science is found in the words: "Keep your eyes open and apply common sense." Another maintained that the aim of true science was to give a "common sense view of the world we live in." Even so great a thinker as Huxley once declared that "Science is nothing but trained and organized common sense."

But this idea is all wrong, as Professor J. Arthur Thomson, of Aberdeen University, very clearly shows in one of the volumes included in the exceedingly useful Home University Library. Professor Thomson says that it would be nearer the truth to say that science is as far on the one side of common sense as poetry is on the One of the most marked differences between science and common sense is found in the former's critical quality which is just what common sense lacks. By common sense is usually meant either the consensus of public opinion, the result of unsystematic every-day thinking, or the verdict rendered by the uncritical experience of some of our five senses. In all these meanings what we call common sense is notoriously untrustworthy and has repeatedly been proved unworthy of belief.

For example, it was common sense that would have had the world keep on thinking that the planets circled round the earth. And it was common sense that refused for a long time to accept Harvey's epoch-making demon-stration of the circulation of the blood.

Science is entirely different from common sense because it is independent of any particular order of facts. It takes the knowable universe for its subject. It deals with physical as well as physical processes, with man as much as with nature. It has to do with everything to which its methods can be applied.

What makes a study scientific is not, of course, the nature of the things with which it is concerned, but the method by which it deals with these things. What we call common sense may make us perfectly familiar with the actions of a sparrow, but only science can explain

why a sparrow does many of the same things that all other birds do.

Science deals with all the clearly defined facts of our experience which can be communicated from one human being to another and which can be verified. Many personal experiences which may be very real to som us cannot be considered proper subjects for scientific investigation until it can be shown that similar experiences will be undergone by all who place themselves in similar conditions.

The popular belief that science has explained everything is a hopeless misunderstanding. It would be nearer the truth to say that science has explained nothing. Even an attempt to refer the facts of experience to any ultimate reality is not the business of science. In a limited sense science explains things by reducing them to simpler terms, by discovering the conditions of their occurrence and by disclosing their history.

For example, when we say that physics has accounted for the tides, we mean only that it has secured a broad grasp of the nature of the facts relating to tides, and is able to relate them to some general formula In this sense only does science explain things.

### IT PAYS to Have SHADE TREES

a real estate dealer tells you that the house or building lot you are thinking of buying is worth several hundred dollars more because it is well sup-

plied with shade trees, don't be too sure that he is trying to take advantage of you until you have counted and measured the trees. Very probably he may be telling the truth, for it has lately been discovered that the right kind of trees do increase the value of a piece of real estate.

In order to determine the value of trees in residential districts the Masachusetts Forestry Association recently sought the advice of a number of practical real estate men. These men were asked this question: "How much, in your judgment, do full grown shade trees along the street improve the value of the adjoining land for house lots?"

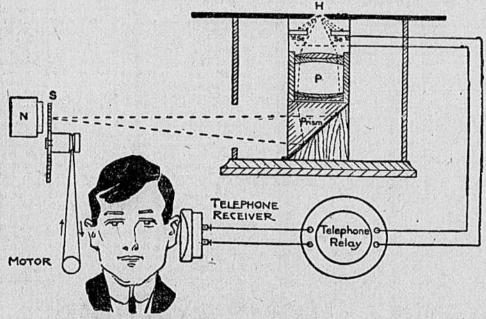
The majority of answers ranged from 10 to 50 per cent, while some went se far as to state that a house

lot would be worth 100 per cent more if full grown shade trees were standing in front of it. A fair average of the answers held that trees would improve the valu eof the adjoining land 40 per cent.

Expert tree appraisers say that a shade tree in good condition and well placed is worth \$1 per square inch of cross-section measured at breast height. At that rate, a tree one foot in diameter is worth \$113, while a tree two feet in diameter is worth \$452.

For the sake of illustration, supnose that we take a good sized house lot, 50x100, or 5,000 square feet, worth 25 cents a foot. The land value is \$1,250. If the trees are spaced 50 feet apart on the street there would be one tree in front of the property. The tree is two feet in diameter and worth \$452, which would increase the value of the lot 36 per cent.

#### A New Device to Make the BLIND SEE page, which the sightless person is unable



HOW THE BLIND SEE WITH THEIR EARS.

The rays from an incandescent lamp (N) are broken up into a scrieg of dots by passing through a rotating siren disk (S). These pass on to a prism where they are reflected upward through a portratt lens (P) and a selentum preparation (Se) to the printed page which is laid face downward at the opening (H). A sensitive telephone connected with the selentum transmits the characteristic sound produced by the shape of each letter to the blind person's ear.

POR a blind person to read any printed meeting of the Royal Society in London.

This invention is based on the london. to be made possible at an early date through an ingenious instrument which has been christened the optophone. It is the invention of E. E. Fournier d'Albe, who recently demonstrated its practical value before a

This invention is based on the fact that the different shapes of letters found on a printed page can be made by an ingenious combination of electrical and optical effects to convey to the ear different sounds, just as the markings on a phonograph record do. In other words the light effects of a printed to grasp with his eyes are transformed into sound effects which are conveyed to his brain by way of his ears.

This miracle is accomplished by throwing the image of a glowing electric light filament upon the printed page, laid face downward on a suitably perforated desk. This image is broken up into a series of seven or eight luminous dots, flashing with different musical frequencies, by means of a rotating siren disc placed immediately in front of the light filament. Some light-sensitive preparation, preferably of selenium, is placed close to the type so as to receive whatever light is diffusely reflected by it. The size of the image is made to fit the size of type to be read, and a sensitive telephone is connected with the

It has been found possible to obtain a

"readable" sound from type of the ordinary newspaper size. The straight black stem of a letter produces silence, and a curved letter, such as S, produces in its passage a set of gradually changing notes which are characteristic of the letter, and cannot be mistaken even after only a few minutes' practice.

To learn the entire alphabet in this way should be a matter of a few weeks or months, but the amount of practise required will vary very greatly from one person to another, as "masical" ear can readily detect the omission of certain notes from a given chord. Under the proper alignment there is no reason why, with sufficient practise, ear-reading should not be almost as rapid as the ordinary

## Thank a CRUEL STEPMOTHER for the KINDERGARTEN

HE old adage that an ill wind always brings good to some one was never better illustrated than in the case of Frederick Froebel, the originator of the kindergarten system which plays such an important part in the education of our boys and girls.

If Froebel's mother had not died when he was a baby and his childhood had not been passed in the care of a neglectful and abusive stepmother, the world might never have had the kindergarten. Froebel's early years in a small village in Thuringia, Germany, were so unhappy that as soon as he grew to manhood he was filled with a desire to supply to other children the pleasant and helpful influences which he himself had lacked. The result was the kindergarten system which is in use in

every civilized country to-day. The system Froebel originated was based on the fundamental principle that human development must begin in action because it is in action that all we see, know or are conscious of has its starting point. Life, action and knowledge were to him the three notes of one har-Copyright, 1914, by the Star Company. Great Britain Rights Reserved.

servient to the discipline of the mental and physical powers which a child can acquire through observation and active work.

Freebel put his ideas to a practical test by opening a school in which his own nephews and nieces were the first pupils. This school finally failed for lack of funds, and it was fourteen years before another was estab-lished. The kindergarten idea was altogether too revolutionary for the conservative educators of that day. first received with indifference, it later met with the most stubborn opposition wherever Froebel attempted to introduce it.

The Berlin Government's decree positively forbidding the establishment of one of the "new fangled" schools within the Prussian dominions proved Froebel's deathblow. Just before he died he remarked to a friend: "If, 300 years from now the kindergarten shall be completely

established, I shall rejoice in heaven." Switzerland was the first country to adopt Froebel's

method of teaching. As he had often predicted, it proved especially adapted to training children in a democratic state, because it recognizes the voluntary activity of the individual as the best means of education and social contact as its best medium.

It was Froebel's own opinion that the spirit of the American nation was the "only one in the world with which his method was in complete harmony, and to which its institutions would present no barriers." A short time before his death he said: "If they will not recognize and support my cause in my native country I will go to the United States, where a new life is unfolding itself, and where a new and better education of man will be able to find a footing.'

The success with which the kindergarten met here after the first ones were established in St. Louis and Boston about thirty years ago shows how prophetic Froebel's dying wish was. To-day the kindergarten is an accepted part of the educational system of every town or city of any size.

